current in the three-phase alternating current received by the three-phase UPS, an input voltage U_b of the B-phase alternating current in the three-phase alternating current received by the three-phase UPS, and an input voltage U_c of the C-phase alternating current in the three-phase alternating current received by the three-phase UPS, that is, $V_0=(U_a+U_b+U_c)/3$.

[0051] When the frequency of the 0-axis reference current is the $3N^{th}$-order harmonic frequency of the mains, a phase of the 0-axis reference current, an amplitude of the 0-axis reference current, and a proportion during proportional adjustment on the difference between the 0-axis reference current and the 0-axis sampling current are adjusted, so that the 0-axis current forms a closed loop, that is, the 0-axis current forms a negative feedback, and when the zero wire of the three-phase uninterruptible power supply is normal, a location of a wave peak of each of the A-phase modulated wave, the B-phase modulated wave, and the C-phase modulated wave is the same as a location of a wave trough of the 0-axis reference current, and a location of a wave trough of the modulated wave is the same as a location of a wave peak of the 0-axis reference current. In this way, a wave peak of each of the A-phase modulated wave, the B-phase modulated wave, and the C-phase modulated wave that are obtained after the 0-axis reference current is superposed falls, and a wave trough of each of the A-phase modulated wave, the B-phase modulated wave, and the C-phase modulated wave that are obtained after the 0-axis reference current is superposed rises, avoiding that a wave peak of a modulated wave is higher than a wave peak of a carrier, and that a wave trough of a modulated wave is lower than a wave trough of a carrier.

[0052] Optionally, as shown in FIG. 5, the determining that a zero wire of a three-phase UPS is lost includes:

[0053] S501. Determine absolute values of average values of voltages of phases in the three-phase alternating current received by the three-phase UPS.

[0054] $\overline{U_a}=\int_t^{t+T} U_a dt$ is an average value of voltages of the A-phase alternating current in the three-phase alternating current received by the three-phase UPS, where U_a is an instantaneous value of the voltage of the A-phase alternating current in the three-phase alternating current received by the three-phase UPS; $\overline{U_b}=\int_t^{t+T} U_b dt$ is an average value of voltages of the B-phase alternating current in the three-phase alternating current received by the three-phase UPS, where U_b is an instantaneous value of the voltage of the B-phase alternating current in the three-phase alternating current received by the three-phase UPS; and

[0055] $\overline{U_c}=\int_t^{t+T} U_c dt$ an average value of voltages of the C-phase alternating current in the three-phase alternating current received by the three-phase UPS, where U_c is an instantaneous value of the voltage of the C-phase alternating current in the three-phase alternating current received by the three-phase UPS, and T is a mains cycle.

[0056] S502. When a smallest value of the absolute values of the average values of the voltages of the phases in the three-phase alternating current received by the three-phase UPS is greater than a first threshold, determine that the zero wire of the three-phase UPS is lost.

[0057] If $\overline{U_{NGmin}}=\min \{|\overline{U_a}|, |\overline{U_b}|, |\overline{U_c}|\}$, when $\overline{U_{NGmin}}$ is greater than the first threshold, it is determined that the zero wire of the three-phase UPS is lost.

[0058] Optionally, as shown in FIG. 6, the three-phase UPS control method provided in this embodiment of the present disclosure further includes:

[0059] S601. Determine that the zero wire of the three-phase UPS recovers, that is, a zero wire between an alternating current power network and a p point in FIG. 2 is connected.

[0060] S602. Use, as the 0-axis reference current, a signal obtained after proportional integral is performed on a difference between a bus difference reference voltage V_{NG_ref} and an actual bus difference V_{NG}, where the bus difference reference voltage V_{NG_ref} is zero, that is, $V_{NG\_ref}=0$; and then, generate the 0-axis modulated wave according to the difference between the 0-axis reference current and the 0-axis sampling current.

[0061] The actual bus difference is $V_{busP}-V_{busN}$, V_{busP} is a voltage on a positive bus capacitor, and V_{busN} is a voltage on a negative bus capacitor.

[0062] When the zero wire is connected, a valid value of a current on the zero wire is obviously relatively large; therefore, optionally, as shown in FIG. 7, the determining that the zero wire of the three-phase UPS recovers includes:

[0063] S701. Determine a valid value of a current, on the zero wire, in the three-phase alternating current received by the three-phase UPS.

[0064] The valid value of the current, on the zero wire, in the three-phase alternating current received by the three-phase UPS is

$$I_{N\_RECrms} = \sqrt{\frac{1}{T}\int_t^{t+T} I_{N\_REC}^2 dt},$$

where I_{N_REC} is an instantaneous value of the current, on the zero wire, in the three-phase alternating current received by the three-phase UPS, $I_{N\_REC}=I_{LA}+I_{LB}+I_{LC}$, I_{LA} is an instantaneous value of the current on the rectifier inductor connected to the rectifier that rectifies the A-phase alternating current in the three-phase UPS, I_{LB} is an instantaneous value of the current on the rectifier inductor connected to the rectifier that rectifies the B-phase alternating current in the three-phase UPS and I_{LC} is an instantaneous value of the current on the rectifier inductor connected to the rectifier that rectifies the C-phase alternating current in the three-phase UPS.

[0065] S702. When the valid value of the current, on the zero wire, in the three-phase alternating current received by the three-phase UPS is greater than a second threshold, determine that the zero wire of the three-phase UPS recovers.

[0066] An actual application of the three-phase UPS control method provided in this embodiment of the present disclosure is shown in FIG. 8, and FIG. 8 describes an example in which a rectifier in the three-phase UPS is controlled in a dq0 coordinate system. Bus voltage control is implemented on a d axis in the dq0 coordinate system, which includes: performing proportional adjustment on a difference between a bus reference voltage and a bus voltage to control the bus voltage, performing proportional integral on a difference between a d-axis reference current and a d-axis sampling current that are output after proportional adjustment, and determining a d-axis modulated wave according to a d-axis sampling voltage and a signal that is